2005 Forest Health Highlights

Maine

January 2006

The Resource

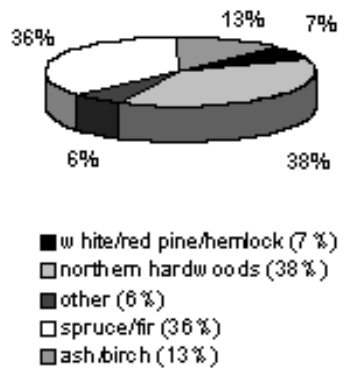
Maine's forests provide much of the raw materials to fuel the State's mills and serve as the backdrop for the recreation industry. These forest-based industries employ more than 12 percent of Maine's workforce and generate over 11 percent of the State's payroll. The overall annual contribution of the forest resource to Maine's economy exceeds $8.5 billion. The forests of the State also provide watershed, environmental, wildlife, and recreational benefits. Forested parks and individual shade trees provide similar amenities in urban and suburban settings.

90% of the State is forested (17,689,000 acres)

Out of the forested area:
- **95.7% timberland**
- **4.3% noncommercial**

or reserved forest land

Major Forest Types:



Special Issues

The annual collection of Forest Inventory and Analysis data for long-term **forest inventory and monitoring** using a standard national plot design and core measurements, has been underway in Maine for 7 years. The Maine Forest Service has incorporated this survey, which integrates the traditional forest inventory with the Forest Health Monitoring Program, into its base internal assessment of forest condition. Beyond the nationally monitored variables such as tree condition, soils, lichens, and ozone bioindicator plants, additional data is collected to address local issues ranging from specific pest impacts to quality of wildlife habitat. The Maine Forest Service has also increased involvement in the USDA-APHIS Cooperative Agriculture Pest Survey, using this program to increase Maine's early warning survey capacity for nonnative forest pests.

Hemlock woolly adelgid, an introduced insect, was first detected in native hemlocks on Gerrish Island at the southern tip of Maine in 2003. During 2005, new spot infestations were found scattered across a 1,500 acre area in the towns of Eliot, York, and South Berwick; bringing the total known area of light spot infestations to 5,000 acres scattered across the five southernmost towns of the State. The Maine Forest Service is carrying out an integrated Slow-the-Spread management program to reduce the spread and impact of established adelgid populations in York County. In the last 2 years, a total of 17,500 *Sasajiscymnus tsugae* have been released on Gerrish Island to establish this predator in a forested part of the island. Over the past 2 years, the Maine Forest Service also identified 12 sites in the infested area that were deemed to be at a high risk of artificial spread of the adelgid. Hemlocks on these sites were sprayed with Talstar plus oil. All treated sites show excellent control.

Common pine shoot beetle, which was trapped by the Maine Forest Service in Oxford and Franklin Counties between 2000 and 2003, and resulted in State and Federal quarantines of those counties, has not been recovered since. During 2005, the Maine Forest Service conducted trapping at 45 sites (mill yards, bark processing plants, and hard pine stands), both within and outside the regulated area, and USDA APHIS PPQ conducted additional trapping in unregulated counties. Although no pine shoot beetles have been recovered from Maine in either 2004 or 2005, commerce-constraining regulations remain in effect. The Maine Forest Service and Maine Department of Agriculture are working with the regional and National Plant Boards and other concerned States to promote less onerous pest management processes for the Northeast.

Special Issues cont.

Balsam woolly adelgid populations resurged in the mid 1990's, causing widespread fir damage and death in Downeast Coastal Maine. The populations subsided in 2004, apparently as a result of winter mortality. Populations generally continued to be at low levels in 2005, although spot trunk phase infestations continue to be reported as far north as southern Aroostook County. While the relatively wet conditions of the last 2 years is enabling the light to moderately damaged trees to recover, mortality continues to accrue on more heavily damaged fir. Analysis of remeasured plots across a 6-million-acre area of Eastern Coastal Maine, show that over the past 5 years 34 percent of the live fir has detectable adelgid injury and 9 percent has died from adelgid impacts. There is an evident damage/mortality gradient from coastal to inland plots, with highest levels (24 percent mortality) in the coastal zone. The Maine Forest Service continues to support cooperative adelgid research with the University of Maine and continues to monitor the situation.

The **browntail moth** population, which had been in outbreak status in the Casco Bay region since the early 1990s, collapsed during the summer of 2005. Although there was a moderate to high population following emergence from overwintering webs, over the course of the cold, wet spring, larvae failed to continue normal development. Many were found covered with fungal spores, most likely *Entomophaga aulicaie.* Larval samples brought back to the lab had a high number of Diptera parasites in them as well. Initial 2005 fall surveys suggests that this downward trend will continue.

The cold, wet spring influenced both insect and disease populations, suppressing potential early defoliators such as forest tent caterpillar and gypsy moth, and exacerbating early season foliar diseases. No **gypsy moth** defoliation was recorded in 2004. *Entomophaga maimaiga*, virus, and parasites continued to keep the gypsy moth population at low levels throughout southern Maine; the 2005 fall egg mass survey indicates that the population will remain at low levels in most locations in 2006. Early season foliar diseases such as **maple anthracnose** throughout southern Maine, **ash leaf and twig rust** along coastal Maine from Ellsworth to Kittery (heaviest in the Rockland/Thomaston area), and **pine needle cast** on stands of pitch pine in western Maine were very evident and generated much public and industry inquiry.

Later in the season, insect defoliation was more evident: **birch skeletonizer** caused spotty defoliation across a broad swath of eastern Maine, and **variable oakleaf caterpillar** defoliated red oak in western and southern Maine. **Spruce budworm** populations remain at endemic levels, although still detectable through pheromone trapping.

Although assessment of damage from **beech bark disease** is complicated by the effects of drought, oystershell scale, late spring frosts, and various hardwood defoliators, it is a major factor causing beech decline and mortality. In Maine's four northern counties, the disease is associated with beech mortality, which has averaged approximately 5 percent per year for the last 10 years. This trend continues.

Other perennial diseases:

Symptoms of **Dutch elm disease** continue to be conspicuous throughout Maine. **European larch canker** is still evident in eastern coastal regions, but shows no evidence of spread beyond the currently infested area. **Butternut canker**, first reported in Maine in 1993, has now been located throughout the State, except in Washington County.

Regional Surveys

Forest Health Monitoring Program

In cooperation with the USDA Forest Service, Maine participates in the National Forest Health Monitoring Program. The program's objective is to assess trends in tree condition and forest stressors. All of the New England States have been involved since the program was initiated in 1990. A healthy forest is defined as having the capacity for renewal, for recovery from a wide range of disturbances, and for retention of its ecological resiliency.

Forest Health Monitoring Sites

The overall health of the forests in New England is good, with various damage agents present at different times and locations. Results from permanent sample sites indicate that there has been minimal change in crown condition in recent years. There are varying impacts from forest fragmentation, drought, fire, insects, and pathogens. The most significant pests are those that have arrived from other parts of the world, such as the gypsy moth, beech bark disease, and hemlock woolly

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